Life in Australia

Platypuses

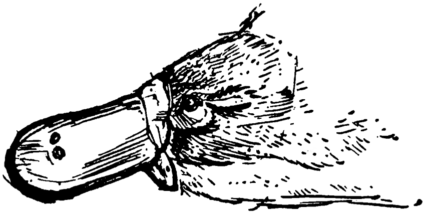
RICHARD PESCOTT

Illustrated by

JOY MURRAY

Oxford University Press

PLATYPUSES



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PLATYPUSES

UNTIL ABOUT one hundred million years ago, Australia was part of a massive land area linked to Asia. About that time, however, some of the land to the north of Australia sank below the sea. When this land bridge was broken, separating Australia from the rest of the world, the animals were left to develop on their own. In other parts of the world animals gradually adapted to their environment or learned to protect themselves from other animals. Some species died out, others learned to survive. In Australia the animals had few natural enemies and they were able to live relatively undisturbed and unchanged. They were little affected by the arrival of the aborigines, who came to the north of Australia about 30,000 years ago. Although both the aborigines and their dogs, which we know today as dingoes, hunted animals for food, they didn't kill enough to threaten the survival of any species or even to greatly change their habits.

Thus, because of its isolation, Australia is the home of some of the world's most ancient surviving creatures, sometimes called 'living fossils'. The majority of these unusual animals are not found in any other country, except for one or two marsupials in South America and are of great interest to scientists and others all over the world. One of the most curious of these animals is the platypus. It has not much changed from the reptile from which it evolved 140 million years ago.

When the first explorers discovered the east coast of Australia late in the 18th century, they found completely different animals and plants to those they knew in the countries they came from. The earliest discovered of these exciting creatures were, of course, the kangaroos, wallabies, possums and koalas.

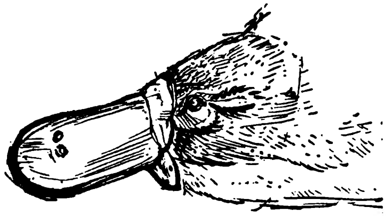
In 1797, however, a very strange animal was discovered by some explorers on the banks of the Hawkesbury River in New South Wales. Collins, in his now rare book *An Account of the English Colony of New South Wales* reports this discovery as follows–

> . . . an amphibious animal, of the mole species, one of which has been lately found on the banks of a lake near the Hawkesbury . . . the most extraordinary circumstance observed in its structure was, in its having, instead of the mouth of an animal, the upper and lower mandibles of a duck. By these it was enabled to supply itself with food, like that bird, in muddy places . . . while on shore its long and sharp claws were employed in burrowing . . .

This was the first written description of the animal that we now know as the Platypus. Because of the strange appearance of its head, it was known for very many years as a duckbill, a watermole and even a duckmole.

The platypus is one of the world's most curious animals. When the first specimens were sent back to England shortly

PLATYPUSES IN THEIR NATURAL ENVIRONMENT



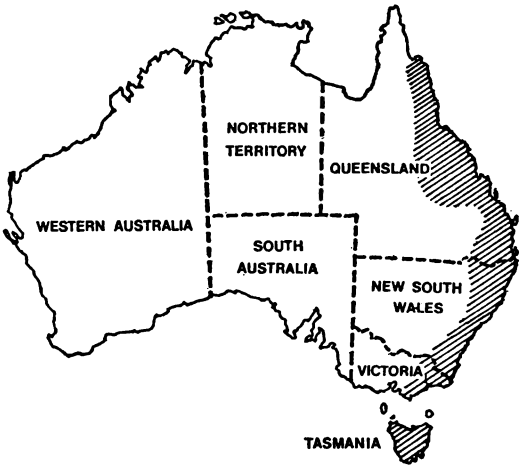
THE PLATYPUS' DUCK-LIKE BILL

after their discovery in Australia, many scientists thought they were fakes. They had had experiences in the past with such fakes as 'mermaids' which were found to be made of monkey's heads sewn on to the bodies of large fish. They suspected that this new animal from Port Jackson in Australia, which had come by ship through the Indian Seas where other fakes had been made, might only be the body of a furred animal with a duck's bill and head, and a duck's webbed feet cleverly sewn on to it.

A careful examination of several of these animals showed them to be something completely new and most exciting. They were certainly the world's most curious animal. They were furred, had a 'duck-like bill', webbed feet, a flattened beaver-like tail and they laid eggs. Nothing like them had ever been seen before. A few years earlier, however, another mammal had been found in Australia which also laid eggs—this was the Spiny Anteater or Echidna as we know it today.

These mammals are still the only two that are known to lay eggs, and they are thought by many scientists to provide a link with the past in the development of mammals from reptiles.

In 1799, the scientific name *Ornithorhynchus* was



THE SHADED AREAS INDICATE WHERE PLATYPUSES ARE FOUND

adopted for the platypus, the name meaning 'bird's bill' and referring to the strange bill of the animal. An earlier name *Platypus* had been suggested for it but, as some beetles had had this same name for many years, a new scientific name had to be found. The name platypus was however, kept for the animal's everyday common name, and is the name still used today.

Although the first platypus was found close to where Sydney in New South Wales is now, it has since been found over a great part of eastern Australia and Tasmania. For a while during the last century, it appeared that the platypus also was likely to become extinct because the early settlers had hunted it, not so much for its food value, but for its fur. This was a passing phase only, and at the present time it appears to be free from serious danger of extinction. The Australian localities have always been east of 138° longitude, and are shown on the accompanying map.

Platypuses are known to live in a wide variety of conditions. For example, they have been found in the clear, cold rapidly flowing mountain streams near Mt. Kosciusko at a height of 6,000 feet. On the other hand, they are just as much at home in the rather muddy, warmer, semi-tropical waters and rivers in Queensland. They may also be found in small waterholes or in large lakes throughout the country.

Over fifty years ago, a research worker at the British Museum noticed that not all platypuses were alike. Apart from the males always being longer than the females, there was a difference in size of the animals and the colour of their fur from different parts of Australia.

After carefully studying them for some time, he felt that there were at least three slightly different kinds and possibly four. None of the differences was great enough to make a new species of platypus, but he decided to make three different 'races' of these animals, as he called them, all with different race names.

He discovered that the typical race of platypuses was to be found along the coastal area of eastern Australia from a little north of Sydney southwards into Victoria. The earlier scientists had called the platypus, *Ornithorhynchus anatinus,* and he suggested that this central coastal race be called *Ornithorhynchus anatinus anatinus,* to show it was the true normal form. It was an averaged sized animal, with dark greyish fur.

In the country west of the Dividing Range in New South Wales, and on the Darling and Murray Rivers, there was a larger platypus—not greatly larger, but certainly the difference was big enough to be seen—and it was usually the same colour as the first race but with slightly longer hair. Because it was bigger, he called this second race, *Ornithorhynchus anatinus triton.*

Right up in the north of Queensland, near Cairns and Cooktown and fairly high up in the mountains, a third race of platypuses has been found. There have only been two or three found, and they are a little smaller in size and much browner in colour. He called these *Ornithorhynchus anatinus phoxinus.*

Another scientist, Ellis Troughton, working on these animals in Australia, has suggested that, if there are these three different races on the mainland, the fourth one should be recognized from Tasmania. It is smaller than the normal mainland platypus, is dark grey in colour, and has a slightly narrower bill. He would like to see this race called *Ornithorhynchus anatinus crispus.*

All this is very interesting, and suggests that where one animal is so widespread as in Australia, where the actual distance would be about 2,000 miles, slightly different forms may be expected to be formed, varying a little in size, colour, and shape.

They are not different species of platypus, and can be expected to breed with one another. Some scientists say that this happens because of changes in climate. Others believe it is quite natural that there should be such variation.

Because the platypus can live both on the land and in the water, it is called an amphibious animal. This dual ability can be very useful. If there is any danger on the land, the animal can run into the water and swim away from the danger, staying there until the trouble is passed.

When fully grown, platypuses range in length from twenty to twenty-four inches, with the flat tail measuring five or six inches of this. The male animal is usually a little longer and bigger than the female. An average-sized male will weigh as much as 4 lbs, whilst an average female weighs from 2 to 2½ lbs. When resting on the surface of the water, the platypus seems smaller than this. This is because it keeps most of its body under the water with only the bill and eyes showing.

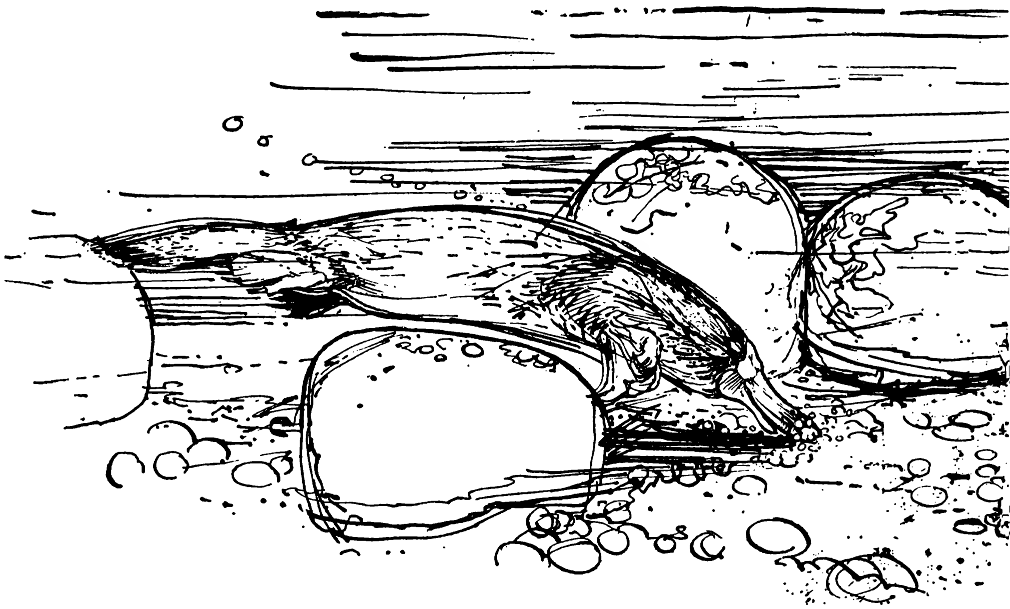
They are extremely timid creatures, they quickly dive and hide under the water if any noise is made, so that it is necessary to keep very quiet if you wish to see a platypus in a stream in the evening.

The platypus does make a quite distinctive noise, although very few people have ever heard it. It has been described by some listeners as a strange sort of 'growl', something like the noise of a broody hen when she is disturbed. Banjo Paterson, the famous Australian poet, called it a 'deep unfriendly growl'.

The body of the platypus is round and flattish. The whole body except the bill, the tail, and the tips of the legs is covered with very short but dense soft fur. Growing

PLATYPUSES ARE OFTEN FOUND IN QUIET STREAMS

through this soft fur are longer, coarser hairs with very shiny tips which turn back into the soft fur. These longer hairs give the colour to the animal, the colour varying with the particular part of the body. It is usually dark brown on the back, and pale creamy yellow to chestnut on the throat, chest and belly. It was this attractive colour range on the underside of the body that made platypus skins so much sought after for rugs a hundred years or so ago, when these



PLATYPUSES LOOKING FOR

animals were not protected in any way at all. Platypuses are now very rigidly protected by law which is a good thing for, if they were not, they would have all been destroyed by now for their skins.

The 'bill' at the front of the body, which puzzled many of the early scientists, is not hard and horny like the bill of a duck, but leathery and quite soft. It has no hair on it, and

FOOD ALONG THE RIVER BED

serves the same purpose as the nose and lips of other animals. It is very sensitive when touched, and is used by the platypus for finding its way around in the muddy water when it is swimming and looking for food. The platypus always closes its eyes and ears when swimming, so it needs the sensitive bill to guide it when it is swimming underwater. It keeps its bill close to the bottom of the river or

YOUNG PLATYPUSES ABOUT TEN WEEKS OLD

creek or waterhole poking into mud and gravel as it looks for food. As soon as it touches any food it snaps it up and eats it.

The platypus is a very greedy creature, eating as much as half its own weight of food in a single night. When the now famous platypus, Jill, which weighed only 2 lbs altogether, was looking after its young baby, Corrie, at the Healesville Sanctuary in 1944, it commonly ate 1¾ lbs of food in a night. Another very famous platypus, Splash, which was tamed by the late Robert Eadie, the first Honorary Director of the Sanctuary at Healesville nearly fifty years ago, would regularly eat half a pound of worms and wood grubs and several hundred tadpoles every afternoon. This huge and strange appetite makes it very difficult to keep several platypuses in a Sanctuary for visitors to see and study.

The food of the platypus consists of all creatures that are found under water—worms, tadpoles, young insects, and crustacea such as small yabbies, prawns and crabs. These are all swallowed mixed with sand and mud, which apparently are necessary to break up and digest the food.

While feeding, the platypus comes to the surface regularly

AQUATIC CRUSTACEA,
INSECT LARVAE,
MOLLUSCS AND
OTHER SMALL
WATER FAUNA
WHICH PLATYPUSES EAT

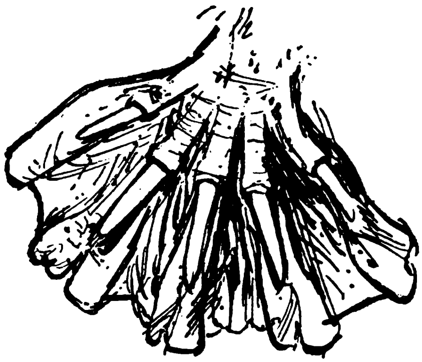
for breathing, and for chewing the food which it has stored in its cheek pouches. It spends about one minute under water catching its food, and the same time on the surface eating it before it swims down under the water catching its food, and the same time on the surface eating it before it swims down under the water again.

When a platypus dives after swimming or resting on the surface of the water, its course can often be traced by a row of small air bubbles. These are not always bubbles of air given out by the platypus while it is breathing, but are often the small pockets of air which have been trapped under the animal's bill when it was swimming. The greatest authority on the platypus, the late Harry Burrell of New South Wales, said that when the platypus dived searching for food, it could hold its breath for a considerable time and never breathe out air bubbles. This is sound commonsense because bubbles could let any enemy of the platypus know where the animal was.

The platypus always begins feeding late in the afternoon and can also be seen searching for food early in the morning. Scientists call this time of feeding *crepuscular*, which is a word that refers to twilight. It spends most of the daytime sleeping in its burrows, which it makes in the banks surrounding the water. If the weather is very dull and overcast, it may sometimes come out to feed during the day because it thinks evening is coming along. It feeds for twenty to sixty minutes at a time before resting. Adult platypuses do not have teeth like other animals, but instead have a flat, hard plate in their mouth on which they grind up their food before swallowing it. These hard plates are necessary to grind up the bodies of many of the hard creatures such as yabbies and crabs which they eat.

While the eyes of the platypus are closed when the animal is swimming under water, they are wide open and very alert when it is swimming or resting on the surface. They are quite small, brown in colour and deeply set, but very bright, alert and beady looking. They are placed so high up on the head that they can only see upwards and outwards. Obviously their main purpose appears to be for protection—to detect possible enemies quickly. If the platypus sees anything moving, it disappears immediately under water. When the platypus is floating, it is very relaxed with its legs spreadeagled to get a good balance, so that good vision is very necessary.

A PLATYPUS FLOATING NEAR THE SURFACE OF THE WATER



THE FRONT PAW WITH
ITS WEBBING SPREAD
FOR SWIMMING

The platypus has four feet, all webbed. When in the water only the front pair is used for swimming, the hind legs trail behind the animal to keep it stable. However, on land, these hind legs are most important, pushing the animal along either on the surface of the ground or through the underground tunnels.

There are strong claws on all four feet, which are used for a number of purposes. They are mostly necessary for burrowing. Because the claws can be reversed, movement backwards is made easier for the platypus. The hind legs are used in self defence for holding on to enemies before striking them with the spurs. They are also used for combing and cleaning the fur.

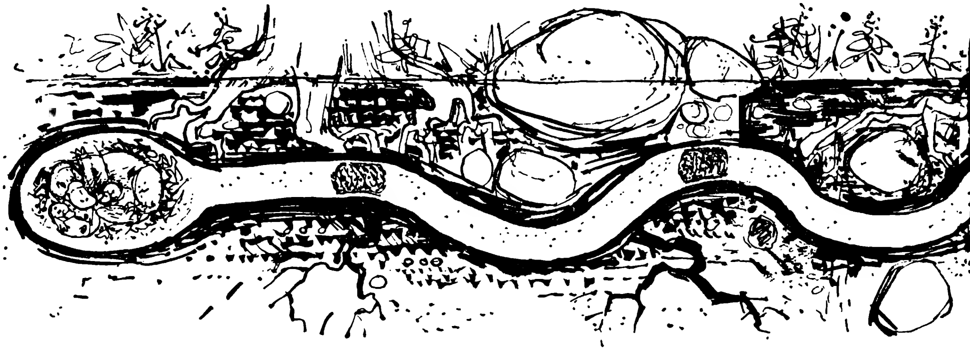
Although the four feet of the platypus may look the same at a casual glance, the position of the webbing between the claws is quite different in the front and back feet. On the two hind feet the webbing reaches only to the base of the claws.

THE FRONT PAW WITH ITS
WEBBING DRAWN BACK
FOR DIGGING

On the front feet, however, it extends for about half an inch beyond these claws, to make what might be called extra large paddles for swimming. When the platypus is walking on the ground or burrowing underground, it can fold back this protruding webbing under its foot, so that the webbing does not get in the way.

The tail of the platypus, quite flat in shape, is very hard and strong and used largely by the animal for diving under the water. It may also be used in the water for steering.

The platypus makes tunnels in the ground to live in. These tunnels are of two different types. Some provide homes in which the platypuses live during the daytime, or when they are not in the water. During the breeding season these tunnels are used by the males only. Other tunnels are for nesting purposes only. These are made by the female when she is ready to lay her egg or eggs. These tunnels twist and turn, changing direction many times, and may be very long. Most tunnels measure from fifteen to thirty feet and are usually very winding. Old tunnels have been found as long as ninety feet. These would have been used for many

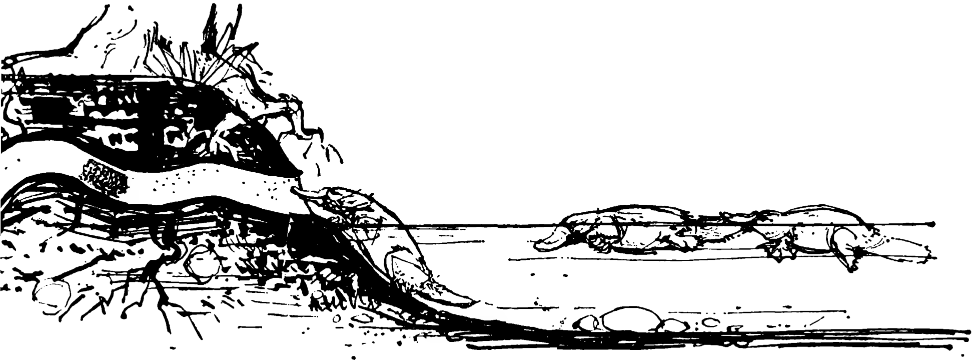


A CROSS-SECTION OF THE PLATYPUSES'

years, perhaps by a number of different platypuses.

The tunnels generally are semicircular in shape, being flattened along the bottom, with an arched or domed roof. In other words, they are roughly the same shape as the animal itself. They may be up to 3½ inches across and 2¼ inches high. The inside of the tunnels is always hard and smooth with a shiny surface. This is done by the hard tough tail which stamps down the soil, making it easier for the animal to walk on. There are no heaps of dirt thrown out near the entrance of the tunnel as you find, for example, with rabbits. The ground around the entrance appears to be quite undisturbed as though the tunnel is never used.

Platypus tunnels or burrows are frequently found beneath the roots of large trees, especially the River Red Gums, along the banks of a stream. The entrances are quite commonly hidden by overhanging rocks or the leaves of plants



or tussocks of grasses. The tunnels do not go very deeply into the ground, keeping at an average distance of no more than two feet below the surface. Entrances to the tunnels are usually some three to six feet above the normal level of the stream or pool, but in times of heavy floods they may actually be under the water. Some people believe that there may be two entrances in the tunnel complex, one below and one above the water but this is not correct under normal conditions. Tunnels are constructed so that there are enough air locks to prevent flood waters flooding out the whole tunnel system and killing the animals.

The entrance tunnel to the nesting chamber where the female lays and hatches her egg or eggs is a very tight squeeze for the females, and many naturalists think that this enables all the water to be squeezed off the female's body before she enters her nest for egg laying. This keeps her more comfortable for the long period she will be there, as well as preventing the possibility of her getting pneumonia or other sicknesses. The nest itself is made of grass and gum leaves, or thin branches of small trees or reeds which she crushes with her jaws to make the nest cosy and warm. The body temperature of a platypus is much lower than that of man, being about 32° Celsius or 90° F., and she must maintain this in the nest for the many weeks she is there.

When the female platypus is ready to lay and incubate her eggs, she plugs up the tunnel behind her in several places with plugs of soft soil which may measure from six to eight inches in thickness, and which she pounds into position with her flat tail. While this would certainly help to stop any water coming into the tunnel during floods, its main purpose is to ensure that she is not disturbed by other animals or enemies that may come into the burrows.

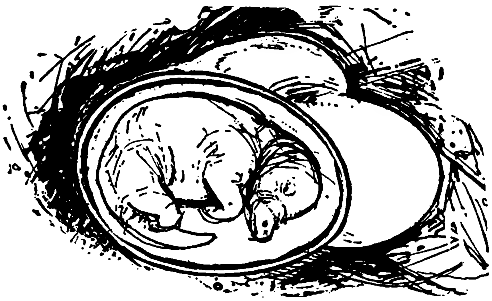
The average number of eggs laid by a platypus is two in each clutch, although in some cases one or even three eggs are known to have been laid. These creamy-white eggs are about half an inch long and have a hard shell like a bird's egg. The eggs are laid by the female about twelve to fourteen days after mating has taken place.

They take, on an average, ten to twelve days in which to hatch, and during the whole of the period of laying and hatching, the female platypus does not leave her nest. Prior to laying, she stores up enough food in her body to carry

BABY PLATYPUSES IN A NEST

her over this period.

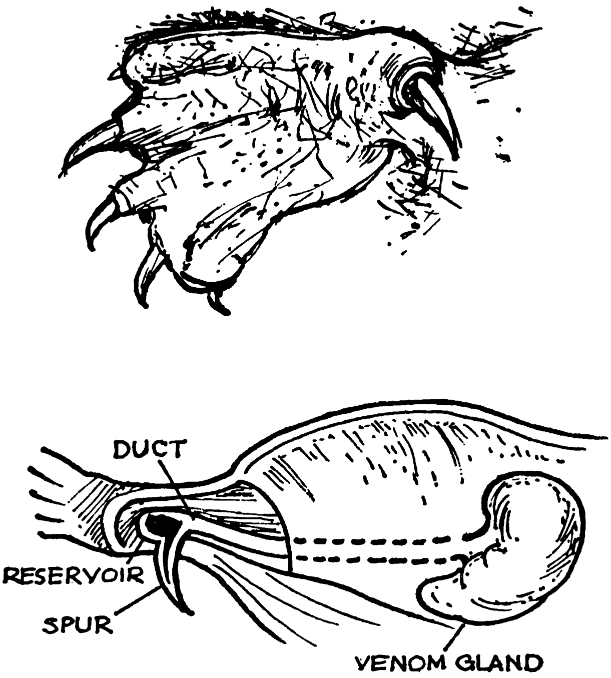
While she is hatching these eggs, she lies curled up in the nest, clutching the eggs to her body to keep them warm. The young ones are only about half an inch long when hatched. They very quickly learn to suck up the milk which oozes out of a particular portion of the body of the mother. The female platypus does not have teats like other mammals from which the young ones obtain their milk. The young are not weaned until they are about four months old. During those four months they do not leave the burrow. After weaning they take their first swim.



PLATYPUS EGGS: THE CROSS-SECTION SHOWS A BABY JUST READY TO HATCH

The breeding period of the playpus is normally during the spring. In the warmer northern parts of Australia, it may be from July to August, while in the cooler south, the month of October seems to be preferred.

The platypus was a fortunate animal in that, in its wild state, it had very few natural enemies. This was probably because its system of underground burrows protected it during the day, and because its acute vision when swimming on the surface of the water warned it immediately if intruders were about. Carpet snakes and large goannas would have been their major enemies. After the white man came, however, and introduced the rabbit, the position quickly changed. Today the rabbit is probably the greatest nuisance to the platypus. The rabbits riddle the banks of creeks and streams with their burrows, and purely by interfering drive the platypus away. Many platypuses were also killed in rabbit traps and drowned in fish nets years ago, but this situation has changed since the animal became strictly protected.



THE HIND FOOT OF THE PLATYPUS SHOWING ITS SPUR AND VENOM GLAND

It is also a very clean animal with few parasites—no fleas, but some ticks can be a nuisance to it, particularly around its eyes.

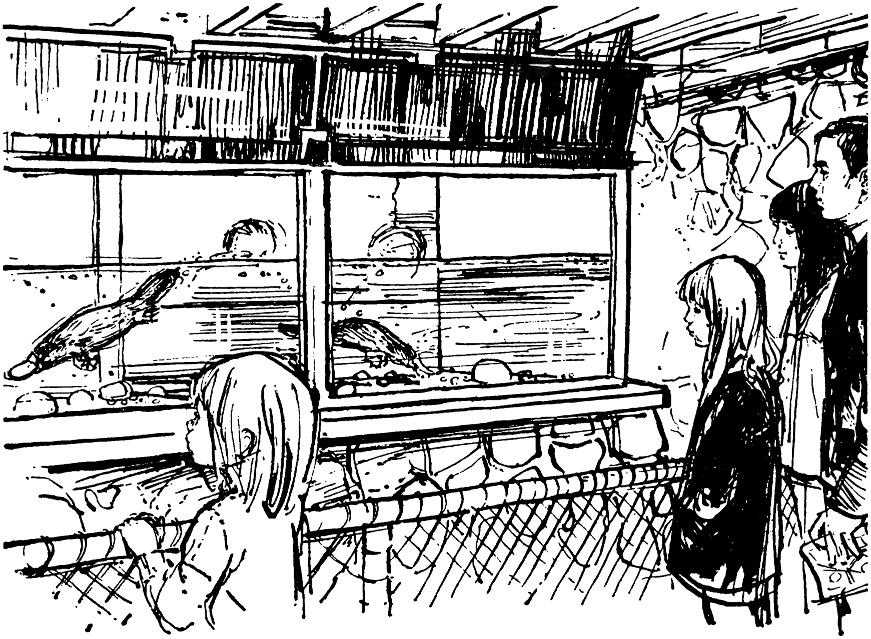
In order to defend itself, the male platypus has a special weapon in both hind legs. This is a strong, slightly curved, poison spur on the heel of the foot. It measures about half an inch long, has a sharp point, and is capable of being moved about in several directions. It is not fixed in one position. It is hollow and is connected to a poison gland further up in the body.

When a platypus finds it necessary to use its spurs, it pushes its two hind legs together with great force, jabbing the spurs into anything that is between them.

Although there is no record that the poison from this gland has killed a man, it can cause intense pain, so that a live platypus must always be handled with care. The affected area may swell with sharp pains developing but the pain usually lasts only for a day. The poison is not as dangerous as that of many Australian snakes.

While the main purpose of this poison spur and its poison is almost certainly to protect the animal from its enemies, it can be used for trapping food. For example, one naturalist saw a platypus using his spurs on a frog to stop it from jumping away, so that it could be eaten later.

The platypus is now very strictly protected by law throughout Australia. It was not always so. For many years after its discovery, it was hunted for its fur. As early as 1840, it was popular among settlers for making into rugs, and in the National Museum in Melbourne there is one such rug made over a hundred years ago containing 120 perfect skins, all the beautiful creamy yellow colour of the underside of the body. How many other platypuses were killed to obtain these 120 perfect skins is not known, but it must have been very many. In 1863 settlers in the country were killing



THE PLATYPUS EXHIBIT AT THE SIR COLIN MACKENZIE WILDLIFE SANCTUARY

platypuses to make into slippers, and skins were being used for making caps for men and women to wear.

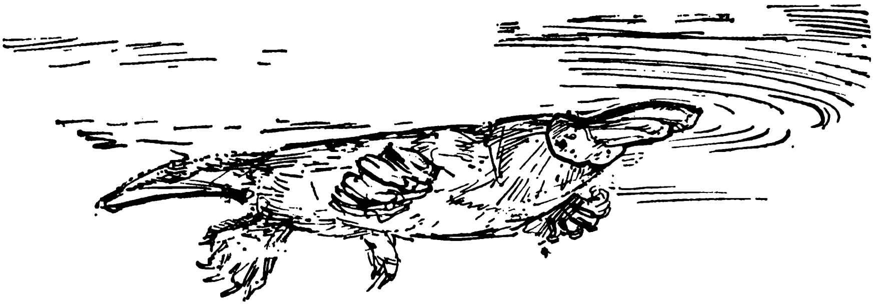
All this has now stopped, however, and thanks to very strict and rigid protection by all Governments in Australia, the platypus is increasing in numbers, and is in no danger of extinction.

While the platypus can now only be seen in Australia, there were several occasions in the past on which live specimens were to be seen overseas. In 1922 the first platypus arrived by ship from Australia at the New York Zoological Gardens in the United States of America. A special type of animal enclosure was built for it, and it was shown to the public for one hour each day. The animal lived only for forty-nine days and during this time many thousands of people saw it. Later, in the 1940s, more platypuses were taken from Australia to the New York Zoological Gardens, this time by David Fleay, at one time Director of the Sanctuary at Healesville. These included the famous platypus, Corrie, which was bred at the Sanctuary. Since that time, however, no further animals have been permitted to leave Australia.

The platypus may be regularly seen swimming at the Sir Colin MacKenzie Sanctuary at Healesville, Victoria. Here, in a large glass tank more than twenty feet in length and about four feet high and wide, the animals swim both on the surface and dive to the bottom, looking out for food amongst the pebbles and stones there. You can see at close quarters the platypus's peculiar action of swimming with the front legs only; the row of air bubbles when it submerges; how it closes it eyes underwater.

The platypuses swim in their tank for only an hour or so each day. When they are not swimming they are taken back into a specially made series of tunnels to rest. These tunnels resemble very closely the tunnels in which they live in the wild state. Before entering, they have to squeeze through a hole lined with rubber which takes away all the excess water from their bodies. These tunnels have dried plant material in them which the animals can use if they want to make a nesting chamber in which to lay eggs. Only once has this happened at Healesville. In 1944 a female platypus named Jill laid an egg in one of the nests and hatched a baby which was christened Corrie. This name was an abbreviation of Coranderrk, the name of the area in which the Sanctuary is established. This baby left the nest when it was about five months old. It was later taken to America where it attracted much attention.

A special visit should be made to Healesville just to see the platypus in action.



Life in Australia

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Life in Australia

AUSTRALIAN CATTLE STATIONS

This is a series with a double purpose. The books in it were originally intended as simple introductions to Australia, its life and people, for young readers overseas. Each was planned as a brief account of a single subject presented in such a way that it would be easily comprehended even by readers who were unfamiliar with Australia, or Australian idioms. As a result the books, although equally enjoyable for Australian readers, because of the way in which they present so much information in a pleasant and easy-to-read form, are also especially suitable for presents to send overseas, or for newcomers to Australia.

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